

# THE DIABETES DICTIONARY



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nal Diabetes Information Clearinghouse



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# THE DIABETES DICTIONARY

Prepared by the  
National Diabetes Information Clearinghouse  
National Institute of Arthritis, Diabetes,  
and Digestive and Kidney Diseases  
National Institutes of Health  
In cooperation with the:  
American Association of Diabetes Educators  
American Diabetes Association  
Juvenile Diabetes Foundation International  
Produced by:  
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## Pronunciation Guide

The letters inside the parentheses () give the reader a simple guide to how the word is said aloud.

The space between the letters shows the syllables.

The accent mark (') shows which syllables to stress.

The hyphen follows syllables that should not be stressed.

A curved line above a letter (ă) gives it a "short" sound and a straight line above a letter (ā) gives it a "long" sound.

For example: tes-tape (tĕs tāp') The word tes-tape has two syllables. The stress is on the last syllable--tape. The "e" has a short sound like the word bed or met. The "a" has a long sound like the word day.

The following examples show each marking used in this dictionary and some sample words that have the most common sounds for each marking.

ă as in cat, map

ā as in day, fade

ě as in bed, pet

ē as in bleed, meet

ĭ as in tip, fit

ī as in side, kite

ō as in stop, cot

ō as in toe, bone

ū as in cut, numb

ū as in glue, youth.

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## **INTRODUCTION**

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### **THE DIABETES DICTIONARY**

This dictionary of diabetes terms defines words that are often used when talking or writing about diabetes. It is designed for people who have diabetes and their families and friends. It provides basic information about the disease, its long-term effects, and its care.

The words are listed in alphabetical order. Some words have many meanings; only those meanings that relate to

diabetes are included. A term will refer the reader to another definition only when the second definition gives additional information about a topic that is directly related to the first term.

Prepared by: The National Diabetes Information Clearinghouse  
The National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, Bethesda, Maryland 20205



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# A

## ACCU-CHEK bG

(ă-kyū'chĕk)

A machine that helps test how much glucose (sugar) is in the blood. See also: Blood glucose monitoring.

## ACETEST

(as'ĕ-tĕst)

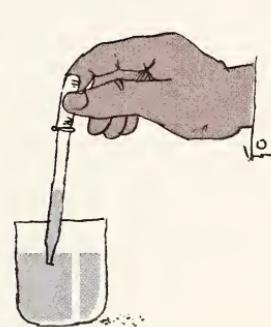
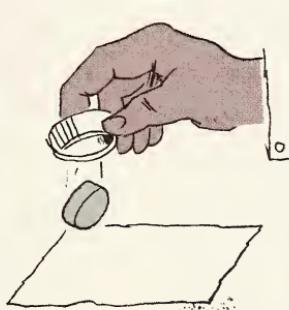
A special tablet used to test urine for ketone bodies; a reagent. See also: Urine testing; reagent.

## ACETONE

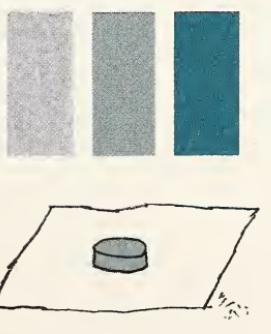
(as'ĕ-tōn)

A chemical formed in the blood when the body uses fat instead of glucose (sugar) for energy. If acetone forms, it usually means that the cells do not have enough insulin, or cannot use the insulin that is in the blood, to use glucose for energy. Acetone passes through the body into the urine. Someone with a lot of acetone in the

ACETEST



30  
seconds



## ACETOHEXAMIDE

body can have breath that smells fruity and is called "acetone breath." See also: Ketone bodies.

### ACETOHEXAMIDE

(as ē'tō-heks'ah-mīd)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

### ACIDOSIS

(as'ī-dō'sīs)

Too much acid in the body. For a person with diabetes, this can lead to diabetic ketoacidosis. See also: Diabetic ketoacidosis.

### ACTRAPID INSULIN

(akt'rā-pīd)

A type of insulin that is fast-acting. See also: Table of Insulins, page 30.

### ACUTE

(ah-kyūt')

Happens for a limited period of time; abrupt onset; sharp, severe.

### ADRENAL GLANDS

(ah-drē'nāl glāndz)

Two organs that sit on top of the kidneys and make and release hormones, such as adrenalin (epinephrine). This and other hormones, including insulin, control the body's use of glucose (sugar).

### ADULT-ONSET DIABETES

Former term for noninsulin-dependent or type II diabetes. See also: Non-insulin-dependent diabetes mellitus.

### ADVERSE EFFECT

(ad'vers ēfĕkt')

A harmful result.

### ALBUMINURIA

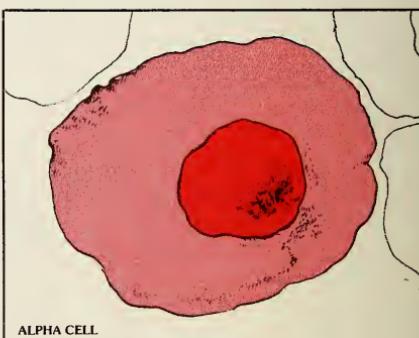
(al'bū-mī-nū'rē-ah)

More than normal amounts of a protein called albumin in the urine. Albuminuria may be a sign of kidney disease, a problem that can occur in people who have had diabetes for a long time.

### ALPHA CELL

(al'fah sĕl)

A type of cell in the pancreas (in areas called the islets of Langerhans). Alpha cells make and release a hormone called glucagon which raises the level of glucose (sugar) in the blood.



### AMINO ACID

(ah-mē'nō as'īd)

The building blocks of proteins; the main material of the body's cells. Insulin is made of 51 amino acids joined together.

### ANGIOPATHY

(an-jē-ōp'ah-thē)

Disease of the blood vessels (arteries, veins, and capillaries) that occurs when someone has diabetes for a long time. There are two types of angiopathy: *macroangiopathy* and *microangiopathy*. In *macroangiopathy*, fat and blood clots build up in the large blood vessels, stick to the vessel walls, and

block the flow of blood. In *microangiopathy*, the walls of the smaller blood vessels become so thick and weak that they bleed, leak protein, and slow the flow of blood through the body. Then the cells, for example, the ones in the center of the eye, do not get enough blood and may be damaged.

## **ANTAGONIST**

(*an-tag'ah-nist*)

One agent that opposes or fights the action of another. For example, insulin lowers the level of glucose (sugar) in the blood while glucagon raises it, so insulin and glucagon are antagonists.

## **ANTIBODIES**

(*an'tēē-bōd'ēz*)

Proteins that the body makes to protect itself from foreign substances. In diabetes, the body sometimes makes antibodies to work against pork or beef insulins because they are not exactly the same as human insulin or because they have impurities. The antibodies can keep the insulin from working well and may even cause the person with diabetes to have an allergic or bad reaction to the beef or pork insulins.

## **ANTIDIABETIC AGENT**

(*an'tēē-dī'ah-bēt'ik*)

A substance that helps a person with diabetes to control the level of glucose (sugar) in the blood so that the body works as it should. See also: Insulin; oral hypoglycemic agents.

## **ANTISEPTIC**

(*an'tēē-sēp'tik*)

An agent that kills bacteria. Alcohol is a common antiseptic. Before injecting insulin, many people use alcohol to clean their skin to avoid infection.

## **ARTERIOSCLEROSIS**

(*ar-tēē-rē-ō-skle-rō'sis*)

A group of diseases in which the walls of the arteries get thick and hard. In one type of arteriosclerosis, fat builds up inside the walls and slows the blood flow. (See: Atherosclerosis.) These diseases often occur in people who have had diabetes for a long time.

## **ARTERY**

(*ar'tēē-ē*)

A large blood vessel that carries blood from the heart to other parts of the body. Arteries are thicker and have walls that are stronger and more elastic than the walls of veins. See also: Blood vessels.

## **ARTIFICIAL ENDOCRINE PANCREAS**

(*ar-tēē-fē'shal ēn' dō-křin pan'krē-ēs*)

A man-made device that constantly measures glucose (sugar) in the blood, and in response, releases the amount of insulin that the body needs at that time. This is a large, bedside machine that also goes by the name "artificial beta cell."

## **ASPARTAME**

(*ās'pär tām*)

A man-made sweetener that people use in place of sugar because it has very few calories.

## **ASYMPTOMATIC**

(*ā-simp'tō-mat'ik*)

No symptoms; no clear sign of disease.

## **ATHEROSCLEROSIS**

(*ath'ēē-rē-ō-skle-rō'sis*)

One of many diseases in which fat builds up in the large- and medium-sized arteries. This buildup of fat may

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## AUTOCLIX

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slow down or stop blood flow. This disease can happen to people who have had diabetes for a long time.

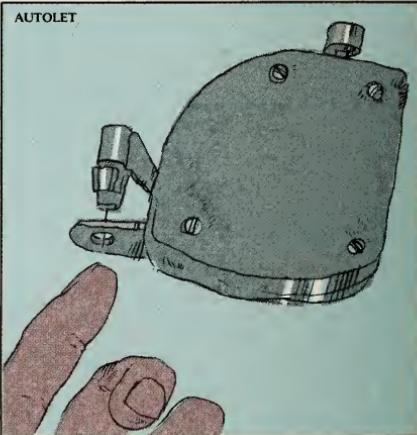
## AUTOCLIX

(aw'tō-klix)

## AUTOLET

(aw'tō-lĕt)

Devices for pricking the skin with a fine needle by pushing a button. Others are called the Hemalet, the Monojector, and the Penlet.



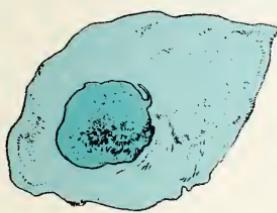
# B

## BETA CELL

(bē'tah sēl)

A type of cell in the pancreas in areas called the islets of Langerhans. Beta cells make and release insulin, a hormone that controls the level of glucose (sugar) in the blood.

BETA CELL



## BIOSYNTHETIC HUMAN INSULIN

(bī'ō-sin-thēt'ik)

A man-made insulin that is very much like human insulin. See also: Human insulin.

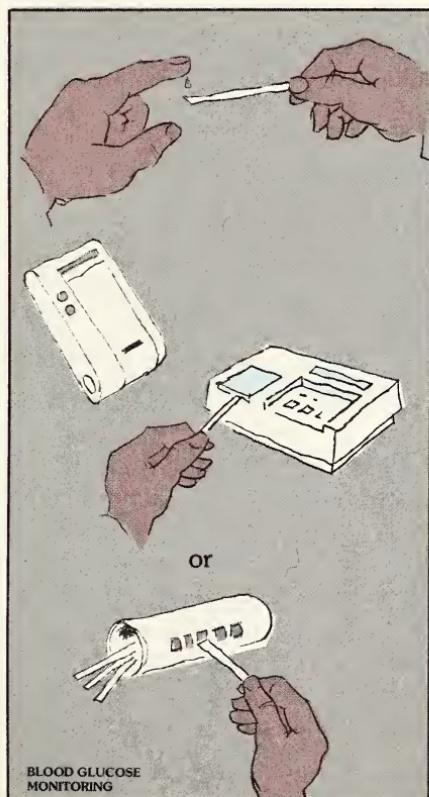
## BLOOD GLUCOSE

(blūd glū'kōs)

The main sugar that the body makes from the three elements of food--proteins, fats, and carbohydrates--but mostly from carbohydrates. Glucose is the major source of energy for living cells and is carried to each cell through the bloodstream. However, the cells cannot use glucose without the help of insulin.

## BLOOD GLUCOSE MONITORING

A way of testing how much glucose (sugar) is in the blood. A drop of blood from the tip of a finger or an earlobe is placed on the end of a special strip of paper. The paper strip has a chemical



on it that makes it change color according to how much glucose is in the blood. A person can tell if the level of glucose is

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## BLOOD PRESSURE

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low, high, or normal in one of two ways. The first is visually by comparing the end of the paper strip to a color chart that is printed on the side of the test strip holder. Types of test strips for self blood glucose testing are *Chemstrip bG*, *Dextrostix*, and *Visidex*.

Instead of comparing the strips to a color chart, some people use a machine (meter). They insert the strips into the meter and read the correct level of glucose in the blood. The types of meters are: the *Accu-Chek*, *Dextrometer*, *Glucocheck*, *Glucometer*, *Glucoscan*, and *StatTek*. An older meter, the *Eyetone Reflectance Colorimeter*, is no longer being made but some people still use it.

## BLOOD PRESSURE

(blūd prēsh'ür)

The force of the blood on the walls of arteries. Two levels of blood pressure are measured, the higher or *systolic* pressure which occurs each time the heart pushes blood into the vessels, and the lower or *diastolic* pressure which occurs when the heart rests. In a blood pressure reading of 120/80, for example, 120 is the systolic pressure and 80 is the diastolic pressure. A reading of 120/80 is said to be in the normal range. Blood pressure that is too high can cause health problems, such as heart attacks and strokes.

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## BLOOD SUGAR

See: Blood glucose.

## BLOOD VESSELS

(blūd vēs'sēls)

Tubes that act like a system of roads or canals to carry blood to and from all parts of the body. The three main types of blood vessels are arteries, veins, and capillaries. The heart pumps blood through these vessels so that the blood can carry with it oxygen and nutrients that the cells need or take away waste that the cells don't need.

## BORDERLINE DIABETES

(bōr'dur līn)

A term no longer used. See: Impaired glucose tolerance.

## BRITTLE DIABETES

(brēt'lul)

A term used when a person's blood glucose (sugar) level often swings very quickly from high to low and from low to high. Also called labile and unstable diabetes.

## BUNION

(būn'yün)

A bump or bulge on the first joint of the big toe caused by the swelling of a sac of fluid under the skin. Shoes that fit well can keep bunions from forming. Bunions can lead to other problems, such as serious infections. See also: Foot care.

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# C

## C-PEPTIDE

(sē pĕp'tīd)

A substance that the pancreas releases into the bloodstream in equal amounts to insulin. A test of C-peptide levels will show how much insulin the body is making.

## CALLUS

(kāl'ūs)

A small area of skin usually on the foot that has gotten thick and hard from rubbing or pressure. Calluses may lead to other problems, such as serious infection. Shoes that fit well can keep calluses from forming. See also: Foot care.

## CALORIE

(cal'ō-rē)

Energy that comes from food. Some foods have more calories than others. Fats have many calories. Most vegetables have few. People with diabetes are advised to follow meal plans with suggested amounts of calories for each meal and/or snack. See also: Meal plan; exchange lists.

## CAPILLARY

(kap'i-lär'ē)

The smallest of the body's blood vessels. Capillaries have walls so thin that oxygen and glucose can pass through them and enter the cells, and waste products, such as carbon dioxide, can pass back into the blood to be carried away and taken out of the body. Some-

times people who have had diabetes for a long time find that their capillaries become weak, especially those in the kidney and the retina of the eye. See also: Blood vessels.

## CARBOHYDRATE

(kar'bō-hī'drāt)

One of the three main classes of foods and a source of energy. Carbohydrates are mainly sugars and starches which the body breaks down into glucose (a simple sugar that the body can use to feed its cells). The body also uses carbohydrates to make a substance called glycogen that is stored in the liver and muscles for future use. If the body does not have enough insulin or cannot use the insulin it has, then the body will not be able to use carbohydrates for energy the way it should, and the condition is called diabetes. See also: Fats; proteins.

## CARDIOLOGIST

(kar-dē-ō'lō-jist)

A doctor who sees and takes care of people with heart disease; a heart specialist.

## CARDIOVASCULAR

(kar'dē-ō-văs'kū lăr')

Relating to the heart and blood vessels (arteries, veins, and capillaries); the circulatory system.

## CHEMICAL DIABETES

### CHEMICAL DIABETES

(khĕm'ĕ kŭl)

A term no longer used. See: Impaired glucose tolerance.

### CHEMSTRIP bG

(kĕm'ĕ străp)

A strip of special paper that is used to test blood for glucose (sugar); a reagent. See also: Blood glucose monitoring.

### CHLORPROPAMIDE

(klôr'prō'pah-mid)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

### CHOLESTEROL

(kō-lĕs'tĕr-ĕl)

A fat-like substance found in blood, muscle, liver, brain, and other tissues in people and animals. The body makes and needs some cholesterol. Too much cholesterol, however, may cause fat to build up in the artery walls and cause a disease that slows or stops the flow of blood. Butter and egg yolks are foods that have a lot of cholesterol.

### CHRONIC

(krōn'ik)

Present over a long period of time. Diabetes is one type of chronic disease.

### CIRCULATION

(ser'kyū-lă'shün)

The flow of blood through the heart and blood vessels of the body.

### CLINSTIX

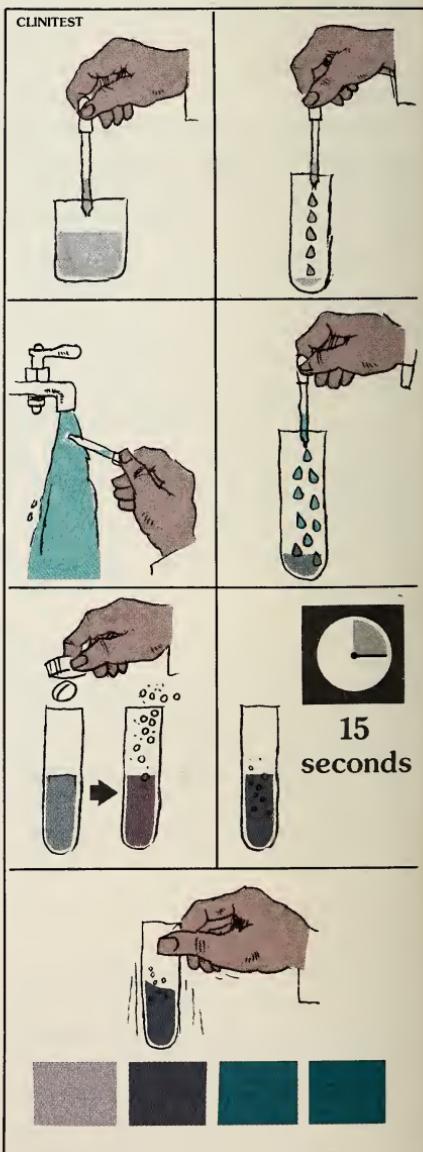
(klîn'i-stiks)

A special strip of paper that is used to test urine for glucose (sugar); a reagent. See also: Urine testing.

### CLINITEST

(klîn'ĕ-tĕst)

A special tablet that is used to test urine for glucose (sugar); a reagent. See also: Urine testing.



**COMA***(kō'māh)*

A sleep-like state; not conscious; can be due to a high or low level of glucose (sugar) in the blood. See also: Diabetic coma.

**COMATOSE***(kō'māh-tōs)*

In a coma; not conscious.

**COMPLICATIONS OF DIABETES**

Harmful effects that may happen after a person has had diabetes for a long time. These include damage to the retina of the eye (retinopathy), the blood vessels (angiopathy), the nervous system (neuropathy), and the kidneys (nephropathy). Some experts believe that strict control of blood glucose levels may help reduce, delay, or prevent these problems.

**CONGENITAL DEFECTS***(kōn-jēn'ī-tăl de'fekts)*

Problems or conditions that are present at birth.

**CONTRAINDICATION***(kōn'trāh-in'di-kā'shūn)*

A condition that makes a treatment not helpful or even harmful.

**CONTROLLED DISEASE**

Taking care of oneself so that a disease has less of an effect on the body. People with diabetes can "control" the disease by staying on their diets, by exercising,

and by taking medicine if it is needed. This care will help to keep the glucose (sugar) level in the blood from becoming either too high or too low.

**CORONARY DISEASE***(kor'ō-nā-rē)*

Damage to the heart. Not enough blood flows through the vessels because they are blocked with fat or have become thick and hard; this harms the muscles of the heart. People with diabetes are at a higher risk of coronary disease.

**COXSACKIE B4 VIRUS***(kok-säk'ē vī'rūs)*

An agent that has been shown to damage the beta cells of the pancreas in lab tests. This virus may be one cause of insulin-dependent diabetes.

**CREATININE***(krē-ăt'i-nīn)*

A chemical found in the blood and passed in the urine. A test of the amount of creatinine in blood or in blood and urine shows if the kidney is working right or if it is diseased. This is called the creatinine clearance test.

**CYCLAMATE***(sī'klāh-māt)*

A man-made chemical that people used instead of sugar. The Food and Drug Administration banned the sale of cyclamates in 1973 because lab tests showed that large amounts of cyclamates can cause bladder cancer in rats.

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# D

## DNA (DEOXYRIBONUCLEIC ACID)

(dē'ōx'sē-ri'bō-nū-klā'ik as'īd)

A chemical substance in plant and animal cells that tells the cells what to do and when to do it. DNA is the information about what each person inherits from his or her parents.

## DEBRIDEMENT

(dā-brēd'mēnt)

Removing infected, hurt, or dead tissue.

## DEHYDRATION

(dē'hī-drā'shūn)

Great loss of body water. If a person with diabetes has a very high level of glucose (sugar) in the urine, it causes loss of a great deal of water and the person becomes very thirsty.

## DELTA CELL

(dē'lāh sĕl)

A type of cell in the pancreas (in areas called the islets of Langerhans). Delta cells make somatostatin, a hormone that is believed to control how the beta cells make and release insulin and how the alpha cells make and release glucagon.

## DESENSITIZATION

(dē-sĕn'si-ti-zā'shūn)

A method to reduce or stop a response, such as an allergic reaction to something. For instance, if a person with diabetes has a bad reaction to taking a full dose of beef insulin, the doctor gives

the person a very small amount of the insulin at first. Over a period of time larger doses are given until the person is taking the full dose. This is one way to help the body get used to the full dose and to avoid having the allergic reaction.

## DEXTROMETER

(dĕks trōm'ē-tĕr)

A machine to help test how much glucose (sugar) is in the blood. See also: Blood glucose monitoring.

## DEXTROSE

(dĕks'trōs)

A simple sugar found in the blood. It is the body's main source of energy. Also called glucose. See also: Blood glucose.

## DEXTROSTIX

(dĕk'strō-stĕks)

A strip of special paper that is used to test the level of glucose (sugar) in the blood; a reagent. See also: Blood glucose monitoring.

## DIABETES INSIPIDUS

(dī'ah-bē'tēz īn-sip'īd-ūs)

A disease of the pituitary gland; not diabetes mellitus. Diabetes insipidus is often called "water diabetes" to set it apart from "sugar diabetes." The cause and the treatment are not the same as for diabetes mellitus. "Water diabetes" has diabetes in its name because people who have it show most of the same signs as someone with diabetes mellitus

-they have to urinate often, get very thirsty and hungry, and feel weak. However, they do not have glucose (sugar) in their urine.

## DIABETES MELLITUS

(dī'ah-bē'tēz mĕl'ī-tūs)

A disease that occurs when the body is not able to use sugar as it should. The body needs sugar for energy for daily activities. It gets sugar when it changes food into glucose (a form of sugar). Diabetes occurs when the body tries to use sugar in the blood for energy but it can't because the pancreas is not able to make enough of a hormone called insulin, or because the body cannot use the insulin it does have. The beta cells in areas of the pancreas called the islets of Langerhans usually make insulin.

There are two main types of diabetes mellitus: *insulin-dependent (type I)* and *noninsulin-dependent (type II)*. In insulin-dependent diabetes, the pancreas makes little or no insulin. This type usually appears suddenly and the person must do three things daily to control the level of glucose (sugar) in the blood: inject insulin, eat a planned diet, and exercise.

In noninsulin-dependent diabetes, the pancreas makes some insulin. A person with this type can sometimes control the disease by eating a planned diet and getting regular exercise. Others may need to take insulin or other medications plus eat a planned diet and exercise daily.

About 90 percent of the people who have diabetes have the non-insulin-dependent type. Many also weigh more than they should. Both types of

diabetes appear in all age groups, but noninsulin-dependent diabetes usually occurs after the age of 40 and insulin-dependent usually occurs before age 30.

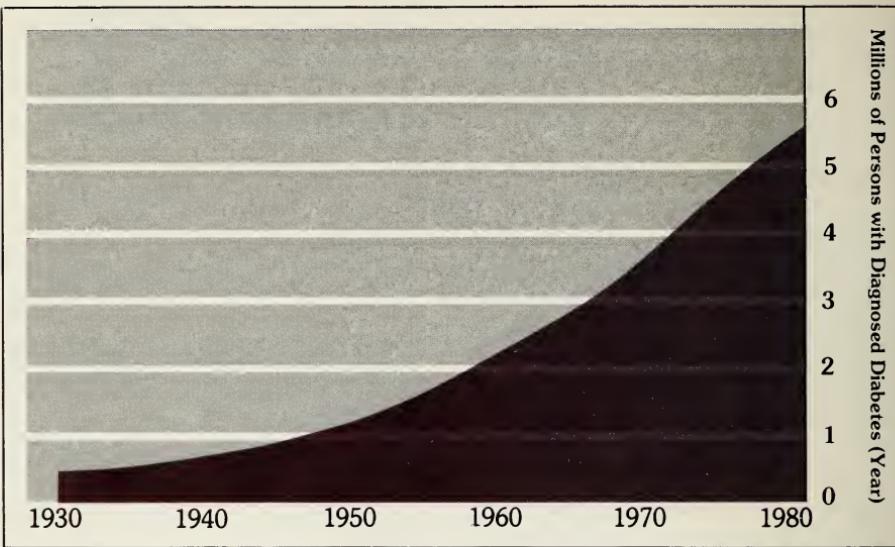
The signs of diabetes include having to urinate often, losing weight, getting very thirsty, and being hungry all the time. People with untreated diabetes are thirsty and have to urinate often because glucose (sugar) builds to a high level in the bloodstream and the kidneys are working hard to flush out the extra amount. People with untreated diabetes often get hungry and tired because the body is not able to use food the way it should.

In insulin-dependent diabetes, if the level of insulin is too low for a long period of time, the body begins to break down its stores of fat. This causes the body to release acids (ketones) into the blood. The result is called ketoacidosis, a severe condition that may put a person into a coma if not treated right away.

The causes of diabetes are not known. Scientists think that insulin-dependent diabetes may be more than one disease and may have many causes. They are looking at heredity (whether or not the person has parents or other family members with the disease) and at factors both inside and outside the body, including viruses.

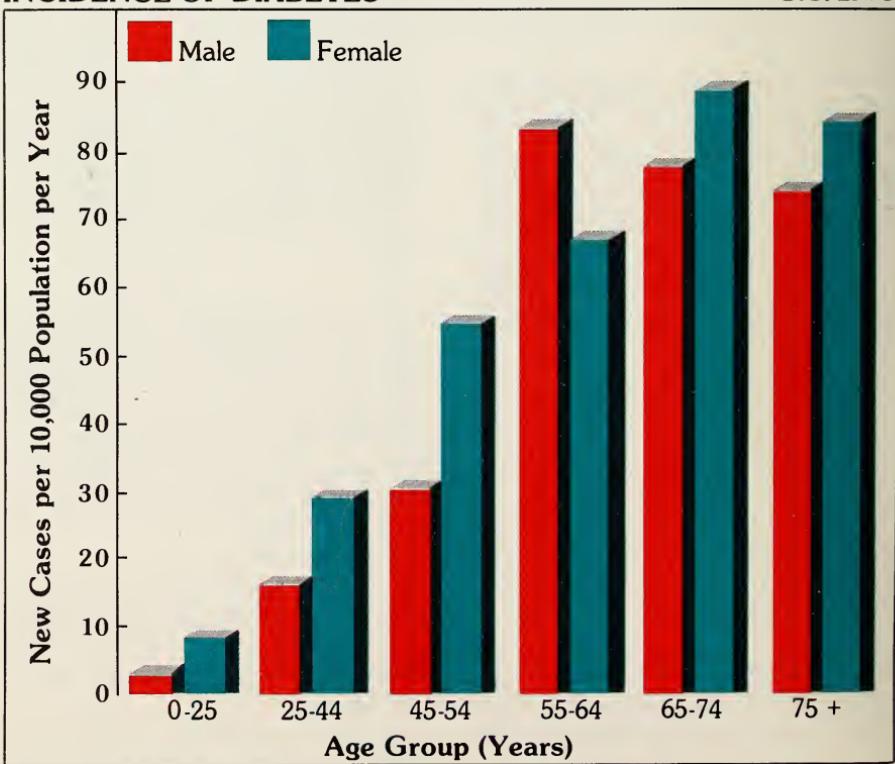
Noninsulin-dependent diabetes appears to be closely associated with obesity and with the body resisting the action of insulin.

## PREVALENCE OF DIAGNOSED DIABETES



## INCIDENCE OF DIABETES

U.S. 1975



**DIABETIC ANGIOPATHY**

(an-je-o-p'ah-thē)

See: Angiopathy.

**DIABETIC COMA**

(ko'māh)

A severe emergency in which a person is not conscious because the blood glucose (sugar) is too high and the body has too many ketones (acids). The person usually has a flushed face, dry skin and mouth, rapid and labored breathing, a fruity breath odor, a rapid, weak pulse, and low blood pressure. See also: Diabetic ketoacidosis.

**DIABETIC KETOACIDOSIS (DKA)**

(ke'tō-as'i-dō'sis)

Severe, out of control diabetes (high blood sugar) that needs emergency treatment. DKA happens when the blood does not have enough insulin because the person is ill, did not take a large enough dose of insulin, or got too little exercise. The body starts using stored fat for energy and ketone bodies (acids) build up in the blood.

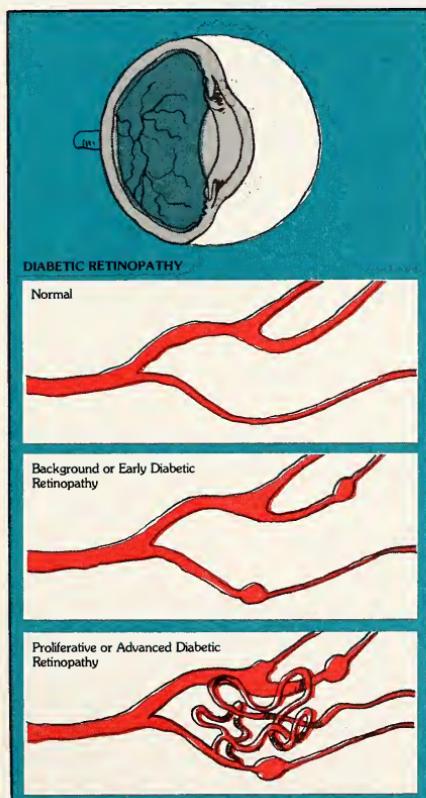
Ketoacidosis starts slowly and builds up. The signs include nausea and vomiting which can lead to loss of water from the body, stomach pain, and deep and rapid breathing. If the person is not given fluids and insulin right away, the ketoacidosis can lead to coma and even death.

**DIABETIC RETINOPATHY**

(rēt'i-nōp'ah-thē)

A disease of the small blood vessels of the retina of the eye. When it starts, the tiny blood vessels in the retina become larger, and they leak a little fluid into the center of the retina. The person's sight is blurred from this and it is called *background retinopathy*. About 80 percent of the people with this leaking never have serious vision problems and the disease never goes beyond this first stage.

However, at the next stage, the harm to sight can be more serious. Many new, tiny blood vessels grow out and across

**DIABETIC NEPHROPATHY**

(nē-frop'ah-thē)

See: Nephropathy.

**DIABETIC NEUROPATHY**

(nür-ōp'ah-thē)

See: Neuropathy.

## DIABETOLOGIST

the eye. This is called *neovascularization*. The vessels may break and bleed into the clear gel that fills the center of the eye and this blocks vision. Scar tissue may also form near the retina, pulling it away from the back of the eye. This stage is called *proliferative retinopathy* and it can lead to loss of vision and even blindness. See also: Photocoagulation or vitrectomy for treatments.

## DIABETOLOGIST

(dī'ah-bět'ō-lō-jist)

A doctor who sees and treats people with diabetes mellitus.

## DIABETOGENIC

(dī'ah-bět'ō-jěn'īk)

Causing diabetes. Certain drugs and some viruses may be diabetogenic.

## DIABINESE

(dī'āb'ī-nēs)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

## DIAGNOSIS

(di'āg-nō'sis)

The term used when a doctor finds that a person has a certain medical problem or disease.

## DIALYSIS

(di'āl'i-sis)

A method for removing waste, such as urea, from the blood when the kidneys can no longer do their job. There are two types of dialysis: hemodialysis and peritoneal dialysis. In *hemodialysis*, the person is connected to a machine (sometimes called an "artificial kidney") which cleans the person's blood by

moving it slowly through a tubing system and a series of filters.

In *peritoneal dialysis*, a special solution is run through a tube into the peritoneum, a thin tissue which lines the cavity of the abdomen. The body's waste products are drawn out and removed. This is done in a hospital. A technique called *continuous ambulatory peritoneal dialysis* allows this kind of dialysis to be done at home. Both types of dialysis may be used to treat people with diabetes who have a kidney disease.



## DIASTIX

(dī'ā-stīks)

A special strip of paper that is used to test urine for glucose (sugar); a reagent. See also: Urine testing.

**DIASTOLIC BLOOD PRESSURE**

(dī'ah-stōl'īk)

See: Blood pressure.

**DIET PLAN**

See: Meal plan.

**DIETITIAN**

(di-ē-tish'ān)

An expert in nutrition who helps people to plan the kinds and amounts of foods to eat for special health needs. A registered dietitian (R.D.) has special qualifications.

**DIURETIC**

(di'ūr-ēt'īk)

A drug that increases the flow of urine in order to rid the body of extra fluid.

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**DOUBLE VOIDED URINE**

(voi' dīd ū'rīn)

A sample of urine taken 30 minutes after a person has already emptied the bladder. The second sample is tested for the amount of glucose (sugar) present to check the level of control of diabetes closer to the time of the test. Also called second-voided urine.

**DYMELOR**

(dī'mīl-ōr)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

# E

## EDEMA

(ĕ-dĕ'mah)

A swelling or puffiness of some part of the body, such as the ankles. Water or other body fluids collect in the cells and cause the swelling.

## EMERGENCY MEDICAL IDENTIFICATION

Cards, bracelets, or necklaces with a written message used by people with diabetes or other medical problems to alert others in case of a medical emergency, such as coma.



## ENDOCRINE GLANDS

(ĕn'dō-kriñ)

Glands that release hormones into the bloodstream. They affect how the body uses food (metabolism). They also influence other body functions. One endocrine gland is the pancreas. It releases insulin so the body can use sugar for energy.

## ENDOCRINOLOGIST

(ĕn'dō-kriñ-nôl'ĕ-jist)

A doctor who treats people who have problems with their endocrine glands. The pancreas is an endocrine gland.

## ENDOGENOUS

(ĕn-dôj'ĕ-nüs)

Grown or made inside the body. Insulin made by a person's own pancreas is endogenous insulin. Insulin that is made from beef or pork pancreas or derived from bacteria is exogenous because it comes from outside the body and must be injected.

## ENZYMES

(ĕn'zimz)

A special type of protein. Enzymes help the body's chemistry work better and more quickly. Each enzyme usually has its own chemical job to do, such as helping to change starch into glucose.

## EPIDEMIOLOGY

(ĕp'i-dĕ'mē-ĕl'ĕ-jĕ)

The study of a disease that deals with how many people have it, where they are, how many new cases are found, and how to control it.

## EPINEPHRINE

(ĕp'i-nĕf'rīn)

One of the secretions of the adrenal glands. It helps the liver to release glucose and limit the release of insulin. It also makes the heart beat faster and can raise blood pressure; also called adrenalin.

### ETIOLOGY

(ĕ'tē-ĕl'ō-jē)

The study of what causes a disease; also the cause or causes of a certain disease.

### EUGLYCEMIA

(ū'glĭ-sē'mē-ah)

A normal level of glucose (sugar) in the blood.

### EXCHANGE LISTS

A grouping of foods to help people on special diets to stay on the diet. Each group lists food in a serving size. A person can exchange, trade, or substitute a food serving in one group for another food serving in that same group. The lists put foods in six groups: 1) milk; 2) vegetables; 3) fruits; 4) breads; 5)

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meat; and 6) fats. Within a food group, each serving has about the same amount of carbohydrate, protein, fat, and calories.

### EXOGENOUS

(eks-ĕj'ĕ-nŭs)

Grown or made outside the body; for instance, insulin made from pork or beef pancreas is exogenous insulin for people.

### EYETONE REFLECTANCE COLORIMETER

(ĕ'tōn rĕ-flek'tĕns kŭl'ōr-ĕm'ĕtĕr)

One of the first machines that was used to help test how much glucose (sugar) is in the blood. Newer models can now be bought. See also: Blood glucose monitoring.

---

# F

## FASTING BLOOD GLUCOSE TEST

A method for finding out how much glucose (sugar) is in the blood. The test can show if a person has diabetes. In a lab or a doctor's office, a blood sample is taken (usually in the morning before breakfast because it is 8 hours or so after eating). If the blood glucose level is in the normal range, it will be from 70 to 110 mg/dl (depending on the type of blood that is tested). If the level is over 140 mg/dl, it usually means the person has diabetes (except for newborns and some pregnant women).

## FATS

One of the three main classes of foods and a source of energy in the body. Fats help the body to use some vitamins and to keep the skin healthy. It is also the major way the body stores energy. In food, there are three types of fats: saturated, unsaturated, and polyunsaturated.

*Saturated fats* are solid at room temperature and come chiefly from animal food products. Some examples are butter, lard, and meat fat. They tend to raise the level of cholesterol, a fat-like substance in the blood.

*Unsaturated (or monounsaturated) fats* are neutral in that they neither raise nor lower blood cholesterol. Olive oil and peanut oil are examples of unsaturated fats.

*Polyunsaturated fats* are liquid at room temperature and come from vegetable oils such as corn, cottonseed, sunflower, safflower, and soybean. These fats tend to lower the level of cholesterol in the blood. See also: Carbohydrates; proteins.

## FATTY ACIDS

A basic unit of fats. When insulin levels are too low or there is not enough glucose (sugar) to use for energy, the body burns fatty acids for energy. The body then makes ketone bodies, waste products that cause the acid level in the blood to become too high. This in turn may lead to ketoacidosis, a serious problem. See also: Diabetic ketoacidosis.

## FIRST-VOIDED URINE

(voi'did ī'rīn)

The first urine a person passes after a long period of time, such as after sleeping.

## FOOD EXCHANGE

See: Exchange lists.

## FOOT CARE

Taking special steps to avoid foot problems, such as sores, cuts, bunions, and calluses. Good care includes bathing and looking closely at the feet, toes, and toenails daily; and choosing shoes and socks or stockings that fit well. People

with diabetes have to take special care of their feet because reduced blood flow sometimes means they will have less feeling in their feet than normal. They may not notice cuts and other problems as soon as they should.

**FRACTIONAL URINE**

(frāk'shūn-ăl ū'rīn)

Urine that a person collects for a certain period of time during 24 hours; usually from breakfast to lunch, from lunch to supper, from supper to bedtime, and bedtime to rising. Also called "block urine."

**FRUCTOSE**

(frūk'tōs)

A type of sugar found in many fruits, vegetables, and in honey. Fructose is used to sweeten some diet foods.

**FUNDUS OF THE EYE**

(fūn'dūs)

The back or deep part of the eye, including the retina.

**FUNDUSCOPY**

(fūn-dūs'kō-pē)

Looking at the back area of the eye to see if there is any damage to the vessels that bring blood to the retina. The doctor uses a device called an ophthalmoscope to check the eye.

---

# G

## GALACTOSE

(găh-lăk'tōs)

A type of sugar found in milk products and sugar beets which is also made by the body.

## GANGRENE

(gan'grēn)

The death of body tissues. It is most often caused by a loss of blood flow, especially in the legs and feet.

## GENE

(jēn)

A basic unit of heredity. Genes are made of DNA, a substance that tells cells what to do and when to do it. The information in the genes is passed from parent to child-so a gene might tell some cells to make the hair red or the eyes brown.

## GENETIC

(jē-nět'ik)

Relating to genes. See also: Gene; heredity.

## GESTATIONAL DIABETES MELLITUS (GDM)

(jēs-tā'shün-ăl)

A type of diabetes mellitus that can occur when a woman is pregnant. In the second half of the pregnancy, the woman may have glucose (sugar) in the blood at a higher than normal level. However, when the pregnancy ends, the blood glucose levels return to normal in about 95 percent of all cases.

## GLAND

A group of special cells that make substances so that other parts of the body can work. For example, the pancreas is a gland that releases insulin so the cells can use glucose (sugar) for energy. See also: Endocrine glands.

## GLUCAGON

(glü'kă-gōn)

A hormone that raises the level of glucose in the blood. The alpha cells of the pancreas (in areas called the islets of Langerhans) make glucagon when the body needs to put more sugar into the blood.

Glucagon is sometimes used when a person is in insulin shock. The glucagon is injected, and it helps to raise the level of glucose (sugar) in the blood. The cells react by using the extra insulin to make energy from the higher amount of glucose in the blood.

## GLUCOCHECK

(glü'kō chĕk)

## GLUCOMETER

(glü'kōm'ĕtĕr)

## GLUCOSCAN

(glü'kō skăñ)

Machines that help test how much glucose (sugar) is in the blood. See also: Blood glucose monitoring.

## GLUCOSE

(glü'kōs)

A simple sugar found in the blood. It is

the body's main source of energy; also known as dextrose. See also: Blood glucose.

### **GLUCOSE TOLERANCE TEST**

(glū'kōs tōl'ēr-ěns)

A test to see if a person has diabetes. The test is given in a lab or doctor's office in the morning before the person has eaten. The person first gives a sample of blood. Then the person drinks a liquid that has glucose (sugar) in it. Every so often, the person gives a sample of blood again to see how the body deals with the glucose in the blood over time. The test will show if the person has diabetes.

### **GLYCOGEN**

(gli'kō-jěn)

A substance made up of sugars that is

stored in the liver and muscles and releases glucose into the blood when needed by cells. Glycogen is the chief source of stored fuel in the body.

### **GLYCOSURIA**

(gli'kō-sū'rē-ah)

Having glucose (sugar) in the urine.

### **GLYCOSYLATED HEMOGLOBIN TEST**

(gli-kōs'ă-lā-tid hē'mě-glo'bīn)

A blood test that measures a person's average blood glucose (sugar) level for the two- to three-month period before the test. See: Hemoglobin A<sub>1C</sub>.

### **GRAM**

A unit of weight in the metric system. There are 28 grams in one ounce. In some diet plans for people with diabetes, the suggested amounts of food are given in grams.

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# H

## HEMODIALYSIS

(hē'mō-dī'āl'i-sis)

A mechanical method of cleaning the blood for people who have kidney disease. See also: Dialysis.

## HEMOGLOBIN A<sub>1</sub>C (HbA<sub>1</sub>C)

(hē'mē-glō'bīn)

The substance of red blood cells that carries oxygen to the cells and sometimes joins with glucose (sugar). Because the glucose stays attached for the life of the cell, about four months, a test of hemoglobin A<sub>1</sub>C shows the average blood glucose level for that period of time.

## HEREDITY

(hē-rēd'i-tē)

The passing of a trait, such as color of the eyes, from parent to child (such as a child being born with blue eyes because one or both parents have blue eyes). A person "inherits" these traits through the genes.

## HIGH BLOOD PRESSURE

When the blood flows through the vessels at a greater than normal force. High blood pressure strains the heart, harms the arteries, and increases the risk of heart attack, stroke, and kidney problems. Also called hypertension.

## HLA ANTIGENS

(an'ti-jēnz)

Proteins on the outer part of the cell that help the body fight illness. These

proteins vary from person to person. Scientists think that people with a certain type of HLA antigens are more likely to have insulin-dependent diabetes.

## HOME BLOOD GLUCOSE MONITORING

A way a person can test how much glucose (sugar) is in the blood. Also called self blood glucose monitoring. See also: Blood glucose monitoring.

## HOMEOSTASIS

(hō'mē-ō-stā'sis)

When the body is working as it should because all of its systems are in balance.

## HORMONE

(hōr'mōn)

A chemical released by special cells to tell other cells what to do. For instance, insulin is a hormone made by the beta cells in the pancreas and when released it tells other cells to use glucose (sugar) for energy.

## HUMAN INSULIN (ARTIFICIAL)

A man-made insulin that is very much like human insulin made by the body. The artificial human insulin is made in a lab by using special strains of a bacteria called *E. coli*. The Food and Drug Administration approved the sale of one type of human insulin called Humulin in October 1982.

**HYPERGLYCEMIA**

(hī'pĕr-glisē'mē-ah)

Too high a level of glucose (sugar) in the blood; a sign that diabetes is out of control. Many things can cause hyperglycemia. It occurs when the body does not have enough insulin or cannot use the insulin it does have to use glucose for energy. Signs of hyperglycemia are: a great thirst and hunger, a dry mouth, and a need to urinate often. For people with insulin-dependent diabetes, this may lead to diabetic ketoacidosis.

**HYPERINSULINISM**

(hī'pĕr-in'sū-lin-izm')

Too high a level of insulin in the blood. This occurs when the body makes too much insulin on its own or when a person takes too much insulin. Too much insulin in the body may cause the blood glucose (sugar) level to go too low. People with this problem feel shaky, nervous, weak, confused, sweaty, and have a headache and hunger. See also: Hypoglycemia.

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**HYPERLIPIDEMIA**

(hī'pĕr-lipēdē'mē-ah)

**HYPERLIPIDEMIA**

(hī'pĕr-lip'i-dē'mē-ah)

Too high a level of fats (lipids) in the blood. This occurs when diabetes is out of control.

**HYPERTENSION**

(hī'pĕr-tĕn'shŭn)

Blood pressure that is above the normal range. See also: High blood pressure.

**HYPOGLYCEMIA**

(hī'pō glisē'mē-ah)

Too low a level of glucose (sugar) in the blood. This occurs when a person with diabetes has injected too much insulin, eaten too little food, or has exercised without extra food. A person with hypoglycemia may feel nervous, shaky, weak, sweaty, and have a headache, blurred vision, and hunger. Taking small amounts of sugar, juice, or food with sugar will usually help the person feel better within 10-15 minutes. See also: Insulin shock.

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# I

## IMPAIRED GLUCOSE TOLERANCE (IGT)

(glū'kōs)

Blood glucose (sugar) levels higher than normal but below the level of someone with diabetes. Even though some persons may have a high level of glucose on the test, they may never develop true diabetes. This used to be called "borderline," "subclinical," "chemical," or "latent" diabetes.

## IMPOTENCE

(im'pō-tēns)

The loss of a man's ability to have an erect penis and to emit semen. Some men may become impotent after having diabetes for a long time because the nerves become damaged. Sometimes the problem has nothing to do with diabetes and may be treated with counseling.

## INCIDENCE

(in'sī-dēns)

How often a disease occurs; the number of new cases of a disease among a certain group of people for a certain period of time.

## INGESTION

(in-jěs'chün)

Taking food, water, or medicines into the body by mouth.

## INJECTION

(in-jĕk'shün)

Putting liquid into the body with a nee-

dle and syringe. A person with diabetes injects insulin by putting the needle into the tissue under the skin (called subcutaneous). Other ways of giving an injection are to put the needle into a vein (intravenous), or into a muscle (intramuscular).

## INJECTION SITES

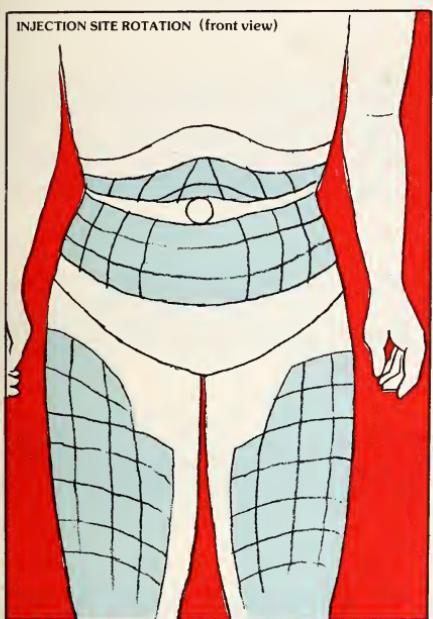
Places on the body where people can inject insulin most easily. These are:

- The outer area of the upper arm.
- Just above and below the waist, except the area right around the navel (a 2-inch circle).
- The upper area of the buttock, just behind the hip bone.
- The front of the thigh, midway to the outer side, 4 inches below the top of the thigh to 4 inches above the knee.

These areas can vary with the size of the person.

## INJECTION SITE ROTATION

Changing the areas on the body where a person injects insulin. The change keeps lumps or small indentations in the skin from forming. These lumps or indentations are called lipodystrophies. People who keep track of where they inject the needle can use a written record to chart the sites and can avoid lumps and skin indentations by not using the same area too often.

**INSULATARD NPH***(iñ'sü-lä-tärd)*

A type of insulin that is intermediate-acting. See: Table of Insulins, page 30.

**INSULIN***(iñ'sü lin)*

A hormone that helps the body use glucose (sugar) for energy. The beta cells of the pancreas (in areas called the islets of Langerhans) make the insulin.

When the body cannot make enough insulin on its own, a person with diabetes must inject beef or pork insulin. The table on page 30 shows the insulins that can be bought in the United States.

**INSULIN ALLERGY***(al'ër-jë)*

When a person's body has an allergic or bad reaction to taking insulin made from pork or beef or from bacteria because it is not exactly the same as

human insulin or because it has impurities.

The allergy can be of two forms. Sometimes an area of skin becomes very red and itchy right around the place where the insulin is injected. This is called a local allergy.

In another form, a person's whole body can have a bad reaction. This is called a systemic allergy. The person can have hives or red patches all over the body, or may feel changes in the heart rate and in the rate of breathing. A doctor may treat this allergy by prescribing purified insulins or by desensitization. See also: Desensitization.

**INSULIN ANTAGONIST***(an-tag'ah-nist)*

Something that opposes or fights the action of insulin. Insulin lowers the level of glucose in the blood while glucagon raises it, so glucagon is an antagonist of insulin.

**INSULIN BINDING**

When insulin attaches itself to something else. This can occur in two ways. First, when a cell needs energy, insulin can bind with the outer part of the cell. The cell then brings glucose (sugar) inside and uses it for energy. With the help of insulin, the cell can do its work very well and very quickly. But sometimes the body acts against itself. In this second case, the insulin binds with the proteins that are supposed to protect the body from outside substances (antibodies). The body sees the pork or beef or bacterial insulin as an outside or "foreign" substance and the insulin then binds with these proteins. When the insulin binds with the antibodies, it does not work as well as when it binds directly to the cell.

# INSULINS AVAILABLE IN THE UNITED STATES 1983

## RAPID ACTING

### Source

### Regular

### Semilente

Beef and Pork	Lilly*	Lilly*
Beef		Squibb/Novo
Pork	Squibb/Novo	
<b>Purified Beef &amp; Pork</b>		
Purified Beef	Lilly	
Purified Pork	Lilly, Nordisk Squibb/Novo	Squibb/Novo
Human (recombinant DNA origin)	Lilly	
#Human (porcine origin)	Squibb/Novo Nordisk	
Action** (time in hours)		
Onset of Action	½-1	1-2
Peak Action	2-5	3-8
Duration of Action	6-8	10-16

\*Also available in U40

\*\*When reviewing the time action (effect) of insulin preparations, it is essential to recognize that estimates of the time of onset, peak, and duration of effect are only rough approximations because the response of patients to doses of insulin varies greatly. For example, increasing the dose of regular insulin will prolong the effect. The source of insulin also affects the duration of action, human insulin being quicker acting than pork

## INTERMEDIATE ACTING

## LONG ACTING

## NPH+Reg

NPH	(70/30)	Lente	PZI	Ultralente
-----	---------	-------	-----	------------

Lilly\*

Lilly\*

Lilly\*

Lilly\*

Squibb/Novo\*

Squibb/Novo\*

Squibb/Novo

Squibb/Novo

Squibb/Novo

Lilly  
Squibb/NovoLilly  
Squibb/Novo

Lilly

Squibb/Novo

Lilly, Nordisk  
Squibb/Novo

Nordisk

Lilly  
Squibb/Novo

Lilly

Lilly

Nordisk

Squibb/Novo

1-2

½-1

1-3

4-6

4-6

6-12

4-8

6-12

14-24

14-24

18-26

22-24

18-24

26-36

28-36

insulin and pork insulin quicker acting than beef insulin. Other factors which may affect an individual's response to a dose of insulin include the site of injection, depth of injection, exercise of the injection area, massage of the injection site, insulin antibody and insulin receptor dynamics.

#Not available for sale—under clinical investigation.

## INSULIN-DEPENDENT DIABETES MELLITUS (IDDM)

### INSULIN-DEPENDENT DIABETES MELLITUS (IDDM)

A chronic condition in which the pancreas makes little or no insulin. The body is then not able to use glucose (blood sugar) for energy. It usually starts abruptly. The signs of IDDM are: a great thirst, hunger, a need to urinate often, and weight loss. To treat the disease, the person must inject insulin, follow a diet plan, and exercise daily. IDDM usually occurs in children and in adults who are under age 30. This type of diabetes used to be known as "juvenile diabetes," "juvenile-onset diabetes," and "ketosis-prone diabetes." It is now also called type I diabetes mellitus.

### INSULIN-INDUCED ATROPHY

(at'ró-fé)

Small dents that form on the skin when a person keeps injecting a needle in the same spot. They are harmless. See also: Lipoatrophy; insulin site rotation.

### INSULIN-INDUCED HYPERTROPHY

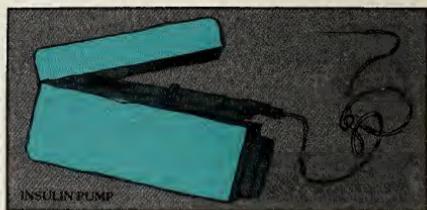
(hi'pér tró-fé)

Small lumps that form under the skin when a person keeps injecting a needle in the same spot. See also: Lipodystrophy; insulin site rotation.

### INSULIN PUMP

A man-made device that pumps insulin into the body all the time at a low (basal) rate. A plastic tube with a small needle inserted under the skin is attached to the body. The pump keeps the level of insulin steady between meals. At meal times, the person uses either a switch or a dial on the pump to inject a larger dose (bolus) of insulin just before eating. The pump runs on batteries. It is

used by people with insulin-dependent diabetes.



### INSULIN REACTION

(rē-äk'shün)

Too low a level of glucose (sugar) in the blood (hypoglycemia). This occurs when a person with diabetes has injected too much insulin, eaten too little food, or has exercised without extra food. The person may feel hungry, nausea, weak, nervous, shaky, confused, and sweaty. Taking small amounts of sugar, juice, or food with sugar will usually help the person feel better within 10-15 minutes. See also: Insulin shock.

### INSULIN RECEPTORS

(rē-sép'törz)

Areas on the outer part of a cell that allow the cell to join or bind with insulin that is in the blood. When the cell and insulin bind together, the cell can take glucose (sugar) from the blood and use it for energy.

### INSULIN RESISTANCE

(rē-zis'tāns)

When a person's body will not allow insulin to do what it is supposed to do. The person may take very high daily doses of insulin (200 units or more) or change to a different, more purified insulin to bring the level of blood glucose (sugar) back to normal. Also called "insulin insensitivity." The condition can occur when a person weighs too much and often improves if the person loses weight.

**INSULIN SHOCK***(shōk)*

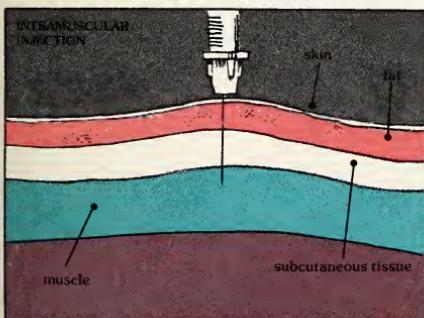
A severe condition that occurs when the level of blood glucose (sugar) drops quickly. The signs are shaking, sweating, dizziness, double vision, convulsions, and collapse. Insulin shock may occur after taking too much insulin, too little food, or exercising without extra food. Also called hypoglycemia.

**INSULINOMA***(īn'sū-līn-ō'mah)*

A tumor of the beta cells in areas of the pancreas called the islets of Langerhans. Although not usually cancerous, such tumors may cause the body to make extra insulin and may lead to a blood glucose (sugar) level that is too low.

**INTRAMUSCULAR INJECTION***(in'trah-müs'kū-lar)*

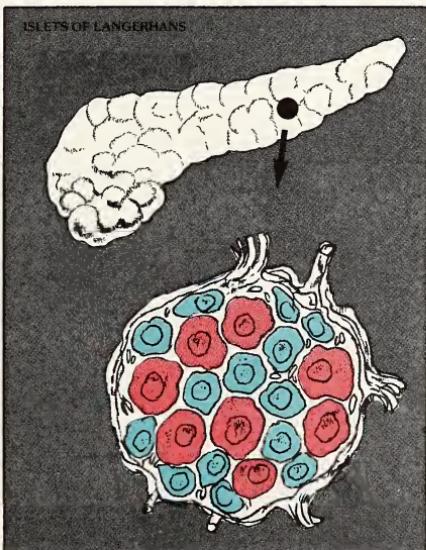
Putting a fluid into a muscle with a needle and syringe.

**ISLET CELL TRANSPLANTATION***(ī'let sel trans-plan-tā'shün)*

Moving the beta cells from the pancreas of one living being to another. The beta cells make the insulin that the body needs to use glucose (sugar) for energy. While transplanting beta cells may one day help people with diabetes, it is still in the research stage using lab animals.

**ISLETS OF LANGERHANS***(lang'ĕr-hănz)*

Special groups of cells in the pancreas. They make and secrete hormones that help the body to break down and use food. Named after Paul Langerhans, the German who discovered them in 1869, these cells sit in clusters in the pancreas. There are five types of cells in an islet: beta cells which make insulin; alpha cells which make glucagon; delta cells which make somatostatin; and PP cells and D<sub>1</sub> cells about which little is known.

**INTRAVENOUS INJECTION***(in'trah-vē'nūs)*

Putting a fluid into a vein with a needle and syringe.

# J

## JUVENILE-ONSET DIABETES

Former term for insulin-dependent or type I diabetes. See: Insulin-dependent diabetes mellitus.

# K

## KETOACIDOSIS

(kē'tō-as'i-dō'sis)

See: Diabetic ketoacidosis.

## KETO-DIASTIX

(kē'tō-di'ă-si̇tiks)

A special strip of paper that is used to test urine for glucose (sugar) and ketone bodies; a reagent. See also: Urine testing.

## KETONE BODIES

(kē'tōn)

Chemicals that the body makes when there is not enough insulin in the blood and it must break down fat for its energy. Ketone bodies can poison and even kill body cells. When the body does not have the help of insulin, the ketones build up in the blood and then "spill" over into the urine so that the

body can get rid of them. The body can also rid itself of one type of ketone called acetone through the lungs. This gives the breath a fruity odor. Ketones that build up in the body for a long time lead to serious illness and coma. See also: Diabetic ketoacidosis.

## KETONURIA

(kē'tō-nū'rē-ah)

Having ketone bodies in the urine; a warning sign of diabetic ketoacidosis (DKA).

## KETOSIS

(kē-tō'sis)

A condition of having ketone bodies build up in body tissues and fluids. The signs of ketosis are nausea, vomiting, and stomach pain. Ketosis can lead to ketoacidosis.

## KETOSTIX

(kē'tō-stiks)

A special strip of paper that is used to test urine for ketone bodies; a reagent. See also: Urine testing; ketone bodies.

## KIDNEY DISEASE

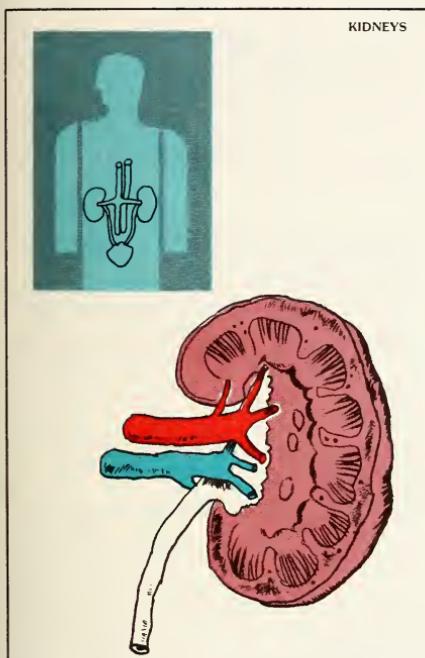
Any one of several chronic conditions that are caused by damage to the cells of the kidney. People who have had diabetes for a long time may have kidney damage. Also called nephropathy.

## KIDNEYS

(kīd'nēz)

Two organs in the lower back that

clean waste and poisons from the blood. The kidneys are shaped like two large beans and they act as the body's filter. They also control the level of some chemicals in the blood, such as hydrogen, sodium, potassium, and phosphate.



## KIDNEY THRESHOLD

The point at which the blood is holding too much of a substance, such as glucose (sugar), and the kidneys "spill" the excess sugar into the urine. See also: Renal threshold.

## KUSSMAUL BREATHING

(koos'mowl)

The rapid, deep, and labored breathing of people who have ketoacidosis or who are in a diabetic coma. Kussmaul breathing is named for Adolph Kussmaul, the 19th century German doctor who first noted it. Also called "air hunger."

L

## LABILE DIABETES

(lā'bīlē)

A term for when a person's blood glucose (sugar) level often swings very quickly from high to low and from low to high. Also called brittle diabetes.

## LACTIC ACIDOSIS

(lăk'tik as'i-dō'sis)

The buildup of lactic acid in the body. The cells make lactic acid when they use glucose (sugar) for energy. If too much lactic acid stays in the body, the balance tips and the person begins to feel ill. The signs of lactic acidosis are deep and rapid breathing, vomiting, and abdominal pain. Lactic acidosis may be caused by diabetic ketoacidosis or liver or kidney disease.

## LACTOSE

(lăk'tōs)

A type of sugar found in milk and milk products (cheese, butter, etc.).

## LANCET

(lan' sĕt)

A fine, sharp-pointed blade or needle for pricking the skin.



## LATENT DIABETES

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### LATENT DIABETES

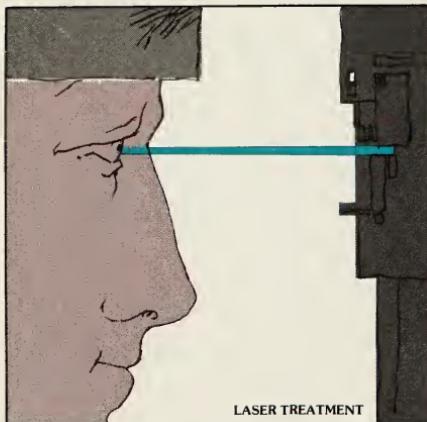
(lā'tēnt)

Former term for impaired glucose tolerance. See also: Impaired glucose tolerance.

### LASER TREATMENT

(lā'zür)

Using a special, strong beam of light (laser) to heal a damaged area. A person with diabetes might be treated with a laser beam to heal blood vessels in the eye. See also: Photocoagulation.



### LENTARD INSULIN

(lēn' tard)

A type of insulin that is intermediate-acting. See: Table of Insulins, page 30.

### LENTE INSULIN

(lēn' tē)

A type of insulin that is intermediate-acting. See: Table of Insulins, page 30.

### LIPID

(lip'īd)

A term for fat. The body stores fat as energy for future use just like a car that has a reserve fuel tank. When the body needs energy, it can break down the lipids into fatty acids and burn them like glucose (sugar).

### LIPOATROPHY

(lip'ō-ă-trō-fē)

Small indentations in the skin that form when a person keeps injecting the needle in the same spot. See also: Lipodystrophy.

### LIPODYSTROPHY

(lip'ō-dis'trō-fē)

Lumps or small indentations in the skin that form when a person keeps injecting the needle in the same spot. Lipodystrophies are harmless. People who want to avoid them can do so by changing (rotating) the places where they inject their insulin. The new purified insulins may also help. See also: Insulin site rotation.

# M

## **MACROANGIOPATHY**

(mak'ro-ān'jē-ōp'ah-thē)

See: Angiopathy.

## **MACROVASCULAR DISEASE**

(mak'rō-vās'kū-lar)

A disease of the large blood vessels that occurs when someone has had diabetes for a long time. Fat and blood clots build up in the large blood vessels and stick to the vessel walls.

## **MATURITY-ONSET DIABETES**

Former term for noninsulin-dependent or type II diabetes. See: Noninsulin-dependent diabetes mellitus.

## **MEAL PLAN**

A guide for controlling the amount of calories, carbohydrates, proteins, and fats a person eats. People with diabetes can use plans like the Exchange Lists or the Point System to help them plan their meals so that they can keep their diabetes under control. See also: Exchange lists; point system.

## **METABOLISM**

(mē-tāb'ē-lizm)

The term for how the cells chemically change food so that it can be used to keep the body alive. It is a two-part process. One part is called *catabolism* and it is when the body uses food for energy. The other is called *anabolism* and it is when the body uses food to build or mend cells.

## **MICROANEURYSM**

(mi'krō-an'yē-rīzm)

A very small swelling that forms on the side of tiny blood vessels. These small swellings may break and bleed into nearby tissue. People with diabetes sometimes get microaneurysms in the retina of the eye.

## **MICROANGIOPATHY**

(mi'krō-ān'jē-ōp'ah-thē)

See: Angiopathy.

## **MICROVASCULAR DISEASE**

(mi'krō-vās'kū-lar)

A disease of the smallest blood vessels that sometimes occurs when someone has had diabetes for a long time. The walls of the vessels become so thick and weak that they bleed, leak protein, and slow the flow of blood through the body. Then some cells, for example, the ones in the center of the eye, may not get enough blood and they may be damaged.

## **MIXTARD INSULIN**

(mīcks-tārd)

A type of insulin that is a mixture of 70 percent intermediate and 30 percent fast-acting. See: Table of Insulins, page 30.

## **MONOTARD INSULIN**

(mōn ō tārd)

A type of insulin that is intermediate-acting. See: Table of Insulins, page 30.

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**MORBIDITY RATE**

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**MORBIDITY RATE**

(môr'bîd'î-të)

The sickness rate; the number of people who are sick or have a disease compared to the number who are well.

**MORTALITY RATE**

(môr-tăl'î-të)

The death rate; the number of people who die of a certain disease compared to the total number of people. Mortality is most often stated as deaths per 1,000, per 10,000, or per 100,000 persons.

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**NPH INSULIN**

A type of insulin that is intermediate-acting. See: Table of Insulins, page 30.

**NEOVASCULARIZATION**

(nē'ō-văs'kū-lär'î-ză'shün)

The term used when new, tiny blood vessels grow in a new place, for example, out and across the eye. See also: Diabetic retinopathy.

**NEPHROLOGIST**

(nē-frôl'ō-jîst)

A doctor who sees and treats people with kidney diseases.

**NEPHROPATHY**

(nē-frôp'ah-thë)

Disease of the kidneys caused by damage to the small blood vessels or to the units in the kidneys that clean the blood. People who have had diabetes for a long time may have kidney damage.

**NEUROLOGIST**

(nyü-rôl'ō-jîst)

A doctor who sees and treats people with problems of the nervous system.

**NEUROPATHY**

(nyü-rôp'ah-thë)

Disease of the nervous system. Many people who have had diabetes for a long time have nerve damage. Although nerve damage can affect many parts of the body, it is very common for people with diabetes to have pain in their feet

and legs or for those areas to tingle or feel numb. (This is called peripheral neuropathy.) Other forms of nerve damage cause double vision, diarrhea, paralysis of the bladder, and loss of feeling or response during sexual activity for both men and women.

### **NONINSULIN-DEPENDENT DIABETES MELLITUS (NIDDM)**

The most common form of diabetes mellitus; about 90 percent of the people with diabetes have this kind. Unlike the insulin-dependent type of diabetes where the pancreas makes no insulin, people with the noninsulin-dependent type usually have a pancreas that will make some insulin even though it may not be enough. Yet because some insulin is made, people who have NIDDM can often control it by diet and exercise. If not, they may need to combine insulin or a pill with diet and exercise. Also some persons with NIDDM make large amounts of insulin but are resistant to its action. Generally, NIDDM occurs in people who are over age 40. Most of the people who have this type are overweight. Noninsulin-dependent diabetes mellitus used to be

called "adult-onset diabetes," "maturity-onset diabetes," "ketosis-resistant diabetes," and "stable diabetes." It is now also called type II diabetes mellitus.

### **NONKETOTIC COMA**

(nōn kē-tōt'īk kō'māh)

A type of coma caused by not enough insulin. A nonketotic crisis means: (1) very high levels of glucose (sugar) in the blood; (2) absence of ketoacidosis; (3) great loss of body fluid; and (4) a sleepy, confused, or comatose state. Nonketotic coma often results from some other problem, such as a severe infection or kidney failure.

### **NUTRITION**

(nū-trish'ūn)

The process by which the body draws nutrients from food and uses them to make or mend its cells.

### **NUTRITIONIST**

(nū-trish'ūn-ist)

A person who is trained to count the calories and nutrients needed for normal growth and daily activity and to help plan meals and long-term eating habits.

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# O

## OBESITY

(ō-bēs'ē-tē)

When people have 20 percent (or more) extra body fat than they should for their age, height, sex, and bone structure. Fat works against the action of insulin. Extra body fat is thought to be a risk factor for diabetes.

## OBSTETRICIAN

(ō'b-stē-trish'ūn)

A doctor who sees and gives care to pregnant women and delivers babies.

## OGTT

See: Oral glucose tolerance test.

## OPHTHALMOLOGIST

(ōph'thāl-mōl'ō-jist)

A doctor who sees and treats people with eye problems or diseases.

## OPTOMETRIST

(ōp tōm'ē trīst)

A person trained to test the eyes and to treat eye problems by prescribing and adapting corrective lenses and other optical aids and by suggesting eye exercise programs.

## ORAL GLUCOSE

## TOLERANCE TEST (OGTT)

Checking to see if a person has diabetes. See: Glucose tolerance test.

## ORAL HYPOGLYCEMIC AGENTS

(ō'hō-glī-sē'mik)

Pills or capsules that people take to lower the level of glucose (sugar) in the

blood. They work for some people whose pancreas still makes some insulin. The pills can help the body in several ways, such as causing the cells in the pancreas to release more insulin.

Four types of these pills are for sale in the United States. As a class of drugs, they are called sulfonylureas. Each type of pill is sold under two names; one is the generic name as listed by the Food and Drug Administration (FDA); the other is the trade name given by the producer. These are:

Generic Name	Trade Name
Tolbutamide	Orinase (Upjohn Co.)
Acetohexamide	Dymelor (Eli Lilly Co.)
Tolazamide	Tolinase (Upjohn Co.)
Chlorpropamide	Diabinese (Pfizer, Inc.)

## ORINASE

(ōr'īn āse)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

## OVERT DIABETES

(ō-vērt')

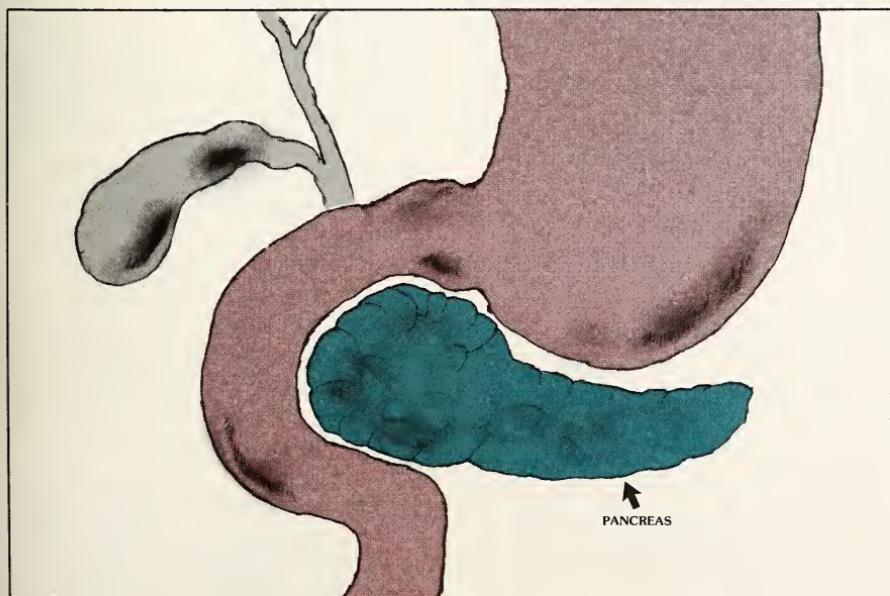
Diabetes in the person who shows clear signs of the disease, such as a great thirst and the need to urinate often.

# P

## PANCREAS

(păñ'kruē-ăs)

An organ behind the lower part of the stomach that is about the size of a hand. It makes insulin so that the body can use glucose (sugar) for energy. It also makes enzymes which help the body digest food. Spread all over the pancreas are areas called the islets of Langerhans. The cells in these areas each have a special purpose. The alpha cells make glucagon which raises the level of glucose in the blood; the beta cells make insulin; the delta cells make somatostatin. There are also the PP cells and the D<sub>1</sub> cells about which little is known.



## PANCREATECTOMY

### PANCREATECTOMY

(pān'krē-ah-tēk'tō-mē)

When a surgeon takes out the pancreas.

### PANCREATIC TRANSPLANT

An experimental procedure which involves replacing the pancreas of a person who has diabetes with a healthy pancreas that can make insulin. The healthy pancreas comes from a donor who has just died or from a living relative who can donate half a pancreas and still have enough to take care of his or her own needs.

### PANCREATITIS

(pān'krē-ah-tī'tēs)

Inflammation (pain, tenderness) of the pancreas; it can make the pancreas stop working. It is caused by drinking too much alcohol, by disease in the gall bladder, or by a virus.

### PEAK ACTION

The time period when the effect of something is as strong as it can be, such as when insulin is having the most effect on the glucose (sugar) in the blood.

### PEDIATRIC

#### ENDOCRINOLOGIST

(pē'dē-ät'rīk en'dō-kri-nō'lō-jist)

A doctor who sees and treats children with problems of the endocrine glands; the pancreas is an endocrine gland.

### PERIODONTAL DISEASE

(per'ē-ō-dōn'tal)

Damage to the gums. People who have diabetes are more likely to have gum disease than people who do not have diabetes.

### PERIPHERAL NEUROPATHY

(pē-rif'ēr-ăl nyū-rōp'ah-thē)

See: Neuropathy.

### PERIPHERAL VASCULAR DISEASE (PVD)

(pē-rif'ēr-ăl vās'kū-lar)

Disease in the blood vessels of the arms, legs, and feet. People who have had diabetes for a long time may get this because their arms, legs, and feet do not receive enough blood. The signs of PVD are aching pains in the arms, legs, and feet (especially when walking), and foot sores that heal slowly. Although people with diabetes cannot always avoid PVD, doctors say they have a better chance of avoiding it if they take good care of their feet, don't smoke, and keep their blood pressure and diabetes under good control.

### PERITONEAL DIALYSIS

(pēr'i-tē-nē'äl dī-äl'y-sis)

A way to clean the blood for people who have kidney disease. See also: Dialysis.

### PHARMACIST

(fāhr'māh-sist)

A person trained to prepare and distribute drugs, and to give information about them.

### PHOTOCOAGULATION

(fō'tō-kō-ag'ü-lā'shün)

Using a special, strong beam of light (laser) to seal off bleeding blood vessels, such as in the eye. This can also burn away blood vessels that should not have grown in the eye. This is the main treatment for diabetic retinopathy.

### PITUITARY GLAND

(pi-tū'i-tair'ē)

An endocrine gland in the small, bony cavity at the base of the brain. Often called "the master gland," the pituitary serves the body in many ways, in

growth, in food use, and in reproduction.



### PODIATRIST

(păh-dī'ah-trĭst)

A doctor who treats and takes care of people's feet.

### PODIATRY

(pah-dī'ah-trē)

The care and treatment of human feet in health and disease.

### POINT SYSTEM

A way to plan meals that uses points to rate foods. The foods are placed in four classes: calories, carbohydrates, proteins, and fats. Each food is given a point value within its class. A person with a planned diet for the day can choose foods in the same class that have the same point values for meals and snacks.

### POLYDIPSIA

(pōl'ē-dip'sē-ah)

A great thirst that lasts for long periods of time; a sign of diabetes.

### POLYPHAGIA

(pōl'ē-fā'jē-ah)

Very great hunger; a sign of diabetes. People with this great hunger often lose weight.

### POLYUNSATURATED FATS

(pōl'ē-ūn-sătch'ĕr-ā-tĕd)

A type of fat that comes from vegetables. See: Fats.

### POLYURIA

(pōl'ē-ūr'ē-ah)

Having to urinate often; a common sign of diabetes.

### POSTPRANDIAL BLOOD GLUCOSE

(pōst-prānd'ē-ăl)

Blood taken 1-2 hours after eating to see the amount of glucose (sugar) in the blood.

### POTENTIAL ABNORMALITY OF GLUCOSE TOLERANCE (PotAGT)

A term for people who have normal blood glucose levels when tested for diabetes but who are thought to be at a higher risk of diabetes than others for a variety of reasons, such as because they have a family history of the disease. PotAGT used to be called "prediabetes" or "potential diabetes."

### PREDIABETES

(prē'dī-ah-bē'tēz)

See: Potential abnormality of glucose tolerance; previous abnormality of glucose tolerance.

### PRE-ECLAMPSIA

(prē-ĕ-kłamp'sē-ah)

A condition that some women with diabetes have during the late stages of pregnancy. Two signs of this condition are high blood pressure and swelling,

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## PREVALENCE

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because the body cells are holding extra water.

### PREVALENCE

(*prēv'ah-lēns*)

The number of people in a given group or population who have a disease.

### PREVIOUS ABNORMALITY OF GLUCOSE TOLERANCE (*PrevAGT*)

A term for people who have had above normal levels of blood glucose (sugar) when tested for diabetes in the past but who show as normal on a current test. *PrevAGT* used to be called "latent diabetes" or "prediabetes."

### PROGNOSIS

(*prōg-nō'sis*)

Telling a person now what is likely to happen in the future because of having a disease.

### PROINSULIN

(*prō-in-sū-lin*)

The substance made first in the pancreas which is then made into insulin. When insulin is purified from the pancreas of pork or beef, all the proinsulin is not fully removed. When some people use these insulins, the proinsulin can cause the body to react with a rash, to resist the insulin, or even to make dents or lumps in the skin at the place where it is injected. The purified insulins have less proinsulin and other impurities than the others.

### PROLIFERATIVE RETINOPATHY

(*prō-lif'er-ā-tūv rēt'i-nōp'ah-thē*)

A disease of the small blood vessels of

the retina of the eye. See: Diabetic retinopathy.

### PROSTHESIS

(*prōs-thē'sis*)

A man-made substitute for a missing body part, such as an arm or leg; also an implant, such as for the hip.

### PROTEIN

(*prō'tēn*)

One of the three main classes of food. Proteins are made of amino acids which are called the building blocks of the cells. The cells need proteins to grow and to mend themselves. Protein is found in many foods, such as meat, fish, poultry, and eggs. See also: Carbohydrate; fat.

### PROTEINURIA

(*prō'tē-in-ū'rē-ah*)

Too much protein in the urine. This may be a sign of kidney damage.

### PROTAPHANE

(*prō'tā fān*)

A type of insulin that is intermediate-acting. See: Table of Insulins, page 30.

### PURIFIED INSULINS

Insulins with much less of the impure proinsulin. It is thought that the use of purified insulins may help avoid or reduce some of the problems of people with diabetes, such as allergic reactions.

### PZI (Protamine Zinc Insulin)

A type of insulin that is long-acting. See: Table of Insulins, page 30.

# R

## REAGENTS

(rē'ājénts)

Strips or tablets that people use to test the level of glucose (sugar) in their blood and urine or the level of acetone in their urine. These reagents are treated with chemicals that change color during the test. Each type of reagent has its own color code to show how much glucose or acetone there is at the time of the test.

The reagent strips for testing urine are: *Clinistix, Diastix, KetoDiastix, Ketostix, and Tes-Tape*. The tablets for testing urine are: *Acetest and Clinitest*. The strips for testing glucose in the blood are: *Chemstrip bG, Chemstrip uG and uG/K, Dextrostix, and Visidex*. See also: Blood glucose monitoring; urine testing.

## REBOUND

(rē' bound)

A swing to a high level of glucose (sugar) in the blood after having a low level. See also: Somogyi effect.

## RECEPTORS

(rē-sěp'tōrz)

Areas on the outer part of a cell that allow the cell to join or bind with insulin that is in the blood. See also: Insulin receptors.

## REGULAR INSULIN

A type of insulin that is fast-acting. See: Table of Insulins, page 30.

## RENAL

(rē'năl)

A term that means having something to do with the kidneys.

## RENAL THRESHOLD

When the blood is holding so much of a substance, such as glucose (sugar), that the kidneys allow the excess to spill into the urine. This is also called "kidney threshold," "spilling point," and "leak point."

## RETINA

(rētī-nah)

The center part of the back lining of the eye that senses light. It has many small blood vessels that are sometimes harmed when a person has had diabetes for a long time.

## RETINOPATHY

(rētī-nōp'ah-thē)

A disease of the small blood vessels in the retina of the eye. See: Diabetic retinopathy.

## RISK FACTOR

Anything that raises the chance that a person will get a disease. With non-insulin-dependent diabetes, people have a greater risk of getting the disease if they weigh a lot more (20 percent or more) than they should.

# S

## SACCHARIN

(săk'ah-rĭn)

A man-made sweetener that people use in place of sugar because it has no calories.

## SATURATED FAT

(sătch'ĕ-rā'tĕd)

A type of fat that comes from animals.  
See: Fats.

## SECOND-VOIDED URINE

(voi'did ū'rēn)

A sample of urine taken 30 minutes after a person has already emptied the bladder. Also called "double-voided urine."

## SECONDARY DIABETES

When a person gets diabetes because of another disease or because of taking certain drugs or chemicals.

## SECRETE

(sĕ-krĕt')

To make and give off, such as when the beta cells make insulin and then put it out into the blood so that other cells in the body can use it to use glucose (sugar) for energy.

## SELF BLOOD GLUCOSE MONITORING

A way a person can test how much glucose (sugar) is in the blood. Also called home blood glucose monitoring.  
See also: Blood glucose monitoring.

## SEMILENT INSULIN

(sĕm'é-lĕn'tĕ)

A type of insulin that is fast-acting. See: Table of Insulins, page 30.

## SEMITARD INSULIN

(sĕm'é-tărd)

A type of insulin that is intermediate-acting. See: Table of Insulins, page 30.

## SHOCK

A severe condition that disturbs the body. A person with diabetes can go into shock when the level of blood glucose (sugar) drops suddenly. See also: Insulin shock.

## SOMATOSTATIN

(sō'măh-tō-stă'tin)

A hormone made by the delta cells of the pancreas (in areas called the islets of Langerhans). Scientists think it may control how the body secretes two other hormones, insulin and glucagon.

## SOMOGYI EFFECT

(săh'mō-gēē)

A swing to a high level of glucose (sugar) in the blood after having a low level. The body can swing from a low level to a high level by itself, or a person can cause this swing by taking too much insulin. This condition is named after Dr. Michael Somogyi, the man who first wrote about it. Also called rebound.

## SORBITOL

(sôr'bî-tôl)

A sugar alcohol the body uses slowly. It

is a sweetener used in diet foods. It is called a nutritive sweetener because it has four calories in every gram, just like table sugar and starch.

### **SPILLING POINT**

When the blood is holding so much of a substance, such as glucose (sugar), that the kidneys allow the excess to spill into the urine. See also: Renal threshold.

### **STATTEK**

(stăt'tĕk)

A machine to help test how much glucose (sugar) is in the blood. See also: Blood glucose monitoring.

### **SUBCLINICAL DIABETES**

(süb'klīn'ĭ-kăl)

A term no longer used. See: Impaired glucose tolerance.

### **SUBCUTANEOUS INJECTION**

(süb'kū-tā'nē-üs)

Putting a fluid into the tissue under the skin with a needle and syringe. See: Injection.



### **SUCROSE**

(sü'krōs)

Table sugar; a form of sugar that the body must break into a more simple form before the blood can absorb it and take it to the cells.

### **SUGAR**

A class of carbohydrates that taste sweet. Sugar is a quick and easy fuel for the body to use. Types of sugar are: lactose, glucose, fructose, and sucrose.

### **SULFONYLUREAS**

(sü'l'fō-nĭl-yü-rē'ahs)

Pills or capsules that people take to lower the level of glucose (sugar) in the blood. See also: Oral hypoglycemic agents.

### **SYMPTOM**

(simp'tüm)

A sign of disease. Having to urinate often is a symptom of diabetes.

### **SYNDROME**

(sĭndrōm)

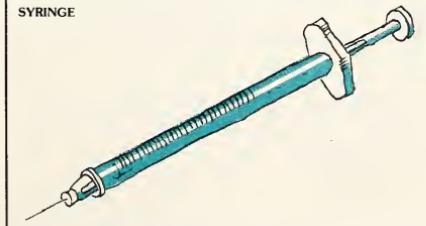
A set of signs or a series of events that alert a person to a health problem.

### **SYRINGE**

(sî-rîng'j')

A device used to inject liquids into body tissues. The syringe for insulin has a hollow plastic or glass tube (barrel) with a plunger inside. The plunger forces the insulin through a needle into the body. Most insulin syringes now come with a needle attached. The side of the syringe has markings to show how much insulin is being injected.

SYRINGE



### **SYSTOLIC BLOOD**

### **PRESSURE**

(sîs-tôl'ĭk)

See: Blood pressure.

# T

## **TES-TAPE**

(tēs tāp')

A special roll of paper like scotch tape that is used to test urine for glucose (sugar); a reagent. See also: Urine testing.

## **TOLAZAMIDE**

(tōl'ăz'ah-mīd)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

## **TOLBUTAMIDE**

(tōl'bū'tāh-mīd)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

## **TOLINASE**

(tōl'īn-āsē)

A pill taken to lower the level of glucose (sugar) in the blood. Only some people with noninsulin-dependent diabetes take these pills. See also: Oral hypoglycemic agents.

## **TOXEMIA OF PREGNANCY**

(tōk-sē'mē-ah)

A condition in which poisons, such as the body's own waste products, build up in the body of a pregnant woman and may cause harm to both the mother and baby. The first signs of toxemia are swelling near the eyes and ankles (edema), headache, high blood

pressure, and weight gain that the mother might confuse with the normal weight gain of being pregnant. The mother may have both glucose (sugar) and acetone in her urine. The mother should tell the doctor about these signs at once.

## **TOXIC**

(tōk'sik)

Harmful; having to do with poison.

## **TRAUMA**

(traw'mah)

A wound, hurt, or injury to the body. Trauma can also be mental, such as when a person feels great stress.

## **TRIGLYCERIDE**

(tri-glis'ĕr-īd)

A type of blood fat. The body needs insulin to remove this type of fat from the blood. When diabetes is under control and a person's weight is what it should be, the level of triglycerides in the blood is usually about what it should be.

## **TWENTY-FOUR-HOUR URINE**

The total amount of a person's urine for a 24-hour period.

## **TYPE I DIABETES MELLITUS**

See: Insulin-dependent diabetes mellitus.

## **TYPE II DIABETES MELLITUS**

See: Noninsulin-dependent diabetes mellitus.

# U

## U-40, U-100

See: Unit of insulin.

## ULCER

(*ü'l'sir*)

A break in the skin; a deep sore. People with diabetes may get ulcers from minor scrapes on the feet or legs, from cuts that heal slowly, or from the rubbing of shoes that don't fit well. Ulcers can become infected.



## ULTRALENTE

(*ü'l'träh-lëñ' të*)

A type of insulin that is long-acting. See: Table of Insulins, page 30.

## ULTRATARD

(*ü'l'träh-tärd'*)

A type of insulin that is long-acting. See: Table of Insulins, page 30.

## UNIT OF INSULIN

The basic measure of insulin. U-40 insulin means 40 units of insulin in one (1) milliliter (ml) or cubic centimeter (cc) of solution. U-100 insulin means

100 units of insulin per milliliter or cubic centimeter of solution.

## UNSATURATED FATS

(*ün-sä'tü rät'ëd*)

A type of fat. See: Fats.

## UNSTABLE DIABETES

(*ün'stä bëł*)

A type of diabetes when a person's blood glucose (sugar) level often swings very quickly from high to low and from low to high. Also called brittle diabetes.

## UREA

(*yü-rë'ah*)

One of the chief waste products of the body. When the body breaks down food, it uses what it needs and throws the rest away as waste. The kidneys flush the waste from the body in the form of urea which is in urine.

## URINE TESTING

(*ü'rïñ*)

Checking urine to see if it contains blood glucose (sugar) and ketones. Special strips of paper or tablets (called reagents) are put into a small amount of urine or urine plus water. Changes in the color of the strip show the amount of glucose or ketones in the urine. See also: Reagents.

## UROLOGIST

(*yü'röl'ö-jëst*)

A doctor who sees men and women for treatment of the urinary tract, and men for treatment of the genital organs.

# V

## **VASCULAR**

(văs'kyü-lär)

Relating to the body's blood vessels (arteries, veins, and capillaries).

## **VEIN**

(vān)

A blood vessel that carries blood to the heart. See also: Blood vessels.

## **VELOSULIN**

(vĕl'ōs'ülin)

A type of insulin that is fast-acting. See: Table of Insulins, page 30.

## **VISIDEX**

(vīs ī dĕks)

A special strip of paper used to test blood for glucose (sugar); a reagent. See also: Urine testing.

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## **VITRECTOMY**

(vīt-rĕk'tō-mē)

Removing the gel from the center of the eyeball because it has blood and scar tissue in it that blocks sight. An eye surgeon replaces the clouded gel with a clear fluid. See also: Diabetic retinopathy.

## **VITREOUS HUMOR**

(vit'rē-üs hū-mör)

The clear jelly (gel) that fills the center of the eye.

## **VOID**

To urinate.

*Thank you for helping us.*

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